

## SEQUENCE LISTING

&lt;110&gt; EXELIXIS, INC.

&lt;120&gt; MAP2K6 AS MODIFIER OF BRANCHING MORPHOGENESIS AND METHODS OF USE

&lt;130&gt; EX03-078C-PC

&lt;150&gt; US 60/420,554

&lt;151&gt; 2002-10-23

&lt;160&gt; 3

&lt;170&gt; PatentIn version 3.2

&lt;210&gt; 1

&lt;211&gt; 2924

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1

```

ggcttctggt tcggcccacc tctgaaggtt ccagaatcga tagtgaattc gtggttccaa      60
gttttgagct tttagctgcc agccctggcc catcatgtag ctgcagcaca gccttcacct      120
acgttgcaac tgggggaaaa atcactttcc agtctgtttt gcaaggtgtg catttccatc      180
ttgattccct gaaagtccat ctgctgcacg ggtcaagaga aactccactt gcatgaagat      240
tgcacgcctg cagcttgcat ctttggtgca aaactagcta cagaagagaa gcaaggcaaa      300
gtcttttgtg ctcccctccc ccatcaaagg aaaggggaaa atgtctcagt cgaaaggcaa      360
gaagcgaaac cctggcctta aaattccaaa agaagcattt gaacaacctc agaccagttc      420
cacaccacct cgagatttag actccaaggc ttgcatttct attggaaatc agaactttga      480
ggtgaaggca gatgacctgg agcctataat ggaactggga cgaggtgcgt acggggtggt      540
ggagaagatg cggcacgtgc ccagcgggca gatcatggca gtgaagcgga tccgagccac      600
agtaaatagc caggaacaga aacgggtact gatggatttg gatatttcca tgaggacggt      660
ggactgtcca ttcactgtca ccttttatgg cgcactgttt cgggaggggtg atgtgtggat      720
ctgcatggag ctcatggata catcactaga taaattctac aaacaagtta ttgataaagg      780
ccagacaatt ccagaggaca tcttagggaa aatagcagtt tctattgtaa aagcattaga      840
acatttacat agtaagctgt ctgtcattca cagagacgtc aagccttcta atgtactcat      900
caatgctctc ggtcaagtga agatgtgcga ttttggaatc agtgggtact tgggtggactc      960
tgttgctaaa acaattgatg cagggtgcaa accatacatg gccctgaaa gaataaaccc     1020
agagctcaac cagaagggat acagtgtgaa gtctgacatt tggagtctgg gcatcacgat     1080
gattgagttg gccatccttc gatttcccta tgattcatgg ggaactccat ttcagcagct     1140
caaacaggtg gtagaggagc catcgccaca actcccagca gacaagttct ctgcagagtt     1200
tgttgacttt acctcacagt gcttaaagaa gaattccaaa gaacggccta catacccaga     1260

```

```

gctaatagcaa catccatttt tcaccctaca tgaatccaaa ggaacagatg tggcatcttt 1320
tgtaaaactg attccttgag actaaaaagc agtggactta atcggttgac cctactgtgg 1380
attggtgggt ttcggggtga agcaagttca ctacagcatc aatagaaagt catccttgag 1440
ataatttaac cctgcctctc agagggtttt ctctcccaat tttcttttta ctccccctct 1500
taagggggcc ttggaatcta tagtatagaa tgaactgtct agatggatga attatgataa 1560
aggcttagga cttcaaaagg tgattaaata tttaatgatg tgtcatatga gtcctcaagc 1620
ttctcagact tctcttattc ttacaaaaat gaatgcattg gccctgacaa aaagggtgcta 1680
cggtagtgat gaaattataa gtagatttgt agtttgtccc atttattatt ttaatatatta 1740
tgtttaagtg cttgggtgaa aagattccat ttatacaag aaggagatt caaaaaaaaa 1800
atataagggt gggtagcaa tatttatagg gcttttattt ttaagttca attgtgtctg 1860
tggtccagaa gaaattattt aatatgcac tttgagaata ttataaaaat atcaaaaagg 1920
agctcttctt gtgaaatgtc tgttccagct gttgtgactg ctgccatttt tggaaacatc 1980
tgcccaatcc tgggtgatca ccacatcttt taggggaagt gacaagatgc tctggtcata 2040
ctctttttcc caactttgga aaacataaaa atcactcata taacagctca aagagtaaaa 2100
catttggttc ttctgacact tgtggtatag tattagtgga aagtgatttg taatatgatt 2160
ttatatccac ctacctattc atctacctgt gtgtatgtgt gtgtttgtgt gtctatttgg 2220
caattcacia gtctgcca gtggtttcta tgagcatctc tgtttggtta ggaggacaat 2280
tgtcagtttt gagggggaca tgtgttaa atcacagaaaa aatgggtgcct tcttctgcgt 2340
ttgtccctcc tgccatgtgt aagttgtaag gattgccttt gtagttaatg tactctttgg 2400
ctttgtttgt ttgttttctt cttcagtga gcagccttac tattcataga agggctagaa 2460
taggagaaaa tgaaaggtag tgagtaattc tttgataaga tgaggaaata atgggaaagg 2520
ttgaattaat tcctgggcat ggactaccag atgaccacaa gttgcgttga ggccgcatct 2580
ttcttcagca gcgtgcaata gctggctcct ctataggaga tgagcttcat tgggagttcc 2640
tagcaagttg actaaacagc aaaagttctt tctcgtgggt aaatataccc acaggttcta 2700
tgattttag ctctaggttt cttgatgatc aaggagtga gtaattgaca gggaaaatat 2760
agacctatga taaataacca ggaagcattg cttttggaca aggaagaaca gagggttttg 2820
attttaaaaa gaagaaaaaa aaaccttatt ttttctttct tggcctcaag ttcaatatgg 2880
agaggattgc ttccctgaat cctctcttcc ttcccccttt agag 2924

```

```

<210> 2
<211> 2820
<212> DNA
<213> Homo sapiens

```

<400> 2  
gcagagtgtt gctgtgtgtg cttgtgattt gtatttttatt tgatgtaaac gtgaaggcag 60  
agtatttttct aacactgtaa ttcaactagg ttttgtgtct cctggatcta tttttttttc 120  
ttgtttgttct gaggagctga tataacttga aatattaggt ttaagatatg cagatgtcca. 180  
acttatatac atagtcaagg gttagagtc tggagacagg aggctggcaa tttcaactag 240  
ggggcaggtc aggcaagaag cgaaaccctg gccttaaaat tccaaaagaa gcatttgaac 300  
aacctcagac cagttccaca ccacctcgag atttagactc caaggcttgc atttctattg 360  
gaaatcagaa ctttgagggtg aaggcagatg acctggagcc tataatggaa ctgggacgag 420  
gtgcgtacgg ggtggtggag aagatgcggc acgtgcccg cgggcagatc atggcagtga 480  
agcggatccg agccacagta aatagccagg aacagaaacg gctactgatg gatttggata 540  
tttccatgag gacggtggac tgtccattca ctgtcacctt ttatggcgca ctgtttcggg 600  
aggggtgatat gtggatctgc atggagctca tggatacatc actagataaa ttctacaaac 660  
aagttattga taaaggccag acaattccag aggacatctt agggaaaata gcagtttcta 720  
ttgtaaaagc attagaacat ttacatagta agctgtctgt cattcacaga gacgtcaagc 780  
cttctaattgt actcatcaat gctctcggtc aagtgaagat gtgcgatttt ggaatcagtg 840  
gctacttggg ggactctgtt gctaaaacaa ttgatgcagg ttgcaaacca tacatggccc 900  
ctgaaagaat aaaccagag ctcaaccaga agggatacag tgtgaagtct gacatttggg 960  
gtctgggcat cacgatgatt gagttggcca tccttcgatt tccctatgat tcatggggaa 1020  
ctccatttca gcagctcaaa cagggtggtag aggagccatc gccacaactc ccagcagaca 1080  
agttctctgc agagtttgtt gactttacct cacagtgcct aaagaagaat tccaaagaac 1140  
ggcctacata ccagagcta atgcaacatc cattttttcac cctacatgaa tccaaaggaa 1200  
cagatgtggc atcttttcta aaactgattc ttggagacta aaaagcagtg gacttaatcg 1260  
gttgacccta ctgtggattg gtgggtttcg ggggtgaagca agttcactac agcatcaata 1320  
gaaagtcac tttgagataa ttttaaccctg cctctcagag ggttttctct cccaattttc 1380  
tttttactcc ccctcttaag ggggccttgg aatctatagt atagaatgaa ctgtctagat 1440  
cctcaatta tgataaaggc ttaggacttc aaaagggtgat taaatattta atgatgtgtc 1500  
atatgagtc tcaagcttct cagacttctc ttattcttta caaatgaat gcattggccc 1560  
tgacaaaaag gtgctacgg agtgatgaaa ttataagtag attttagtt tgtcccattt 1620  
attattttaa tatttatgtt taagtgttg gttgaaaaga ttccatttta tacaagaagg 1680  
aatcaaaa aaaaaaatat aagggtgggt tagcaatatt tatagggtt ttatttttta 1740  
acttcaattg tgtctgtgt ccagaagaaa ttatttaata tgcacttttg agaattattat 1800

```

aaaaatatca aaaaggagct cttcttgtga aatgtctgtt ccagctgttg tgactgctgc 1860
cattttttgga aacatctgcc caatcctggg tgatcaccac atcttttagg ggaagtgaca 1920
agatgctctg gtcatactct ttttcccaac tttggaaaac ataaaaatca ctcatataac 1980
agctcaaaga gtaaaacatt tggttcttct gacacttggt gtatagtatt agtggaaagt 2040
gatttgtaat atgattttat atccacctac ctattcatct acctgtgtgt atgtgtgtgt 2100
ttgtgtgtct atttggcaat tcacaagtcc tgccaagtgg tttctatgag catctctgtt 2160
tggttaaggag gacaattgtc agttttgagg gggacatgtg ttaaatcaca gaaaaaaatg 2220
gtgccttctt ctgcgtttgt ccctcctgcc atgtgtaagt tgtaaggatt gcctttgtag 2280
ttaatgtact ctttggcttt gtttgtttgt tttcttcttc agtgaagcag cttactatt 2340
catagaaggg ctagaatagg agaaaatgaa aggtagtgtg taattctttg ataagatgag 2400
gaaataatgg gaaagggtga attaatcct gggcatggac taccagatga ccacaagttg 2460
cgttgaggcc gcatctttct tcagcagcgt gcaatagctg gctcctctat aggagatgag 2520
cttcattggg agttcctagc aagttgacta aacagcaaaa gttctttctc gtgggtaaat 2580
ataccacag gttctatgat ttgtagctct aggtttcttg atgatcaagg agtgaagtaa 2640
ttgacagggg aaatatagac ctatgataaa taaccaggaa gcattgcttt tggacaagga 2700
agaacagagg gttttgattt taaaaagaag aaaaaaaaac cttatTTTTT ctttcttggc 2760
ctcaagttca atatggagag gattgcttcc ctgaatcctc tcttccttcc ccttttagag 2820

```

<210> 3  
 <211> 334  
 <212> PRT  
 <213> Homo sapiens

<400> 3

```

Met Ser Gln Ser Lys Gly Lys Lys Arg Asn Pro Gly Leu Lys Ile Pro
1           5           10           15

```

```

Lys Glu Ala Phe Glu Gln Pro Gln Thr Ser Ser Thr Pro Pro Arg Asp
           20           25           30

```

```

Leu Asp Ser Lys Ala Cys Ile Ser Ile Gly Asn Gln Asn Phe Glu Val
           35           40           45

```

```

Lys Ala Asp Asp Leu Glu Pro Ile Met Glu Leu Gly Arg Gly Ala Tyr
           50           55           60

```

```

Gly Val Val Glu Lys Met Arg His Val Pro Ser Gly Gln Ile Met Ala
65           70           75           80

```

Val Lys Arg Ile Arg Ala Thr Val Asn Ser Gln Glu Gln Lys Arg Leu  
 85 90 95

Leu Met Asp Leu Asp Ile Ser Met Arg Thr Val Asp Cys Pro Phe Thr  
 100 105 110

Val Thr Phe Tyr Gly Ala Leu Phe Arg Glu Gly Asp Val Trp Ile Cys  
 115 120 125

Met Glu Leu Met Asp Thr Ser Leu Asp Lys Phe Tyr Lys Gln Val Ile  
 130 135 140

Asp Lys Gly Gln Thr Ile Pro Glu Asp Ile Leu Gly Lys Ile Ala Val  
 145 150 155 160

Ser Ile Val Lys Ala Leu Glu His Leu His Ser Lys Leu Ser Val Ile  
 165 170 175

His Arg Asp Val Lys Pro Ser Asn Val Leu Ile Asn Ala Leu Gly Gln  
 180 185 190

Val Lys Met Cys Asp Phe Gly Ile Ser Gly Tyr Leu Val Asp Ser Val  
 195 200 205

Ala Lys Thr Ile Asp Ala Gly Cys Lys Pro Tyr Met Ala Pro Glu Arg  
 210 215 220

Ile Asn Pro Glu Leu Asn Gln Lys Gly Tyr Ser Val Lys Ser Asp Ile  
 225 230 235 240

Trp Ser Leu Gly Ile Thr Met Ile Glu Leu Ala Ile Leu Arg Phe Pro  
 245 250 255

Tyr Asp Ser Trp Gly Thr Pro Phe Gln Gln Leu Lys Gln Val Val Glu  
 260 265 270

Glu Pro Ser Pro Gln Leu Pro Ala Asp Lys Phe Ser Ala Glu Phe Val  
 275 280 285

Asp Phe Thr Ser Gln Cys Leu Lys Lys Asn Ser Lys Glu Arg Pro Thr  
 290 295 300

Tyr Pro Glu Leu Met Gln His Pro Phe Phe Thr Leu His Glu Ser Lys  
 305 310 315 320

Gly Thr Asp Val Ala Ser Phe Val Lys Leu Ile Leu Gly Asp  
 325 330